

REMARKS

Claims 1-58 are pending in the application. Claims 14-19, 33-34, and 51-55 were withdrawn from consideration without traverse. Claims 1-11, 13, 20-32, 35-48, 50 and 56-58 were rejected. Claims 12 and 49 were objected to. Claim 58 is being cancelled. Claims 1, 4-5, 7-8, 23, 28, 37-38, and 45-46 are being amended. No new matter is being introduced.

Claims 4 and 58 were rejected under 35 U.S.C. § 112, second paragraph. Claim 4 is being amended to address same. Claim 5 is being amended in a similar manner. Claim 58 is being cancelled. Thus, Applicant respectfully submits that this rejection should be withdrawn.

Claims 1-6, 20-28, 35-43, and 56-58 were rejected under 35 U.S.C. § 102(b) as being anticipated by Harms *et al.* (U.S. 5,220,836). Claims 1, 2, 4, 6, 20-26, 28, 35-41, 43, and 56-58 were rejected under 35 U.S.C. § 102(a) as being anticipated by Pflueg (U.S. 6,205,872). Claims 1, 2, 4, 6-11, 20-26, 28-31, 35-41, 43-48, and 56-58 were rejected under 35 U.S.C. § 102(b) as being anticipated by Flechsig *et al.* (U.S. 6,092,412).

Claim 1 is being amended at lines 6-7 to recite "at least two channels with high input impedance . . . coupled to the output of the sensor." In the embodiment of Applicant's Fig. 2, coupling of the channels to the output of the sensor occurs at node T1.

In contrast, Harms *et al.* (U.S. 5,220,836) in reference to Fig. 4 disclose the channels receiving the electrical signal at node u_A . This node is at the output of an operational amplifier, which is generally known to be different from a sensor. For example, operational amplifiers have low output impedance, restrict dynamic range, and contribute noise to a sensor signal, whereas a sensor such as disclosed by the Applicant in Fig. 2 has high output impedance (see page 2, lines 12-13 of the specification as originally filed) and does not restrict dynamic range or contribute additional noise to the signal it has already output.

Continuing to refer to Harms *et al.*, in reference to Fig. 1, Harms *et al.* disclose a circuit connected to the sensor, but one of the channels in the circuit has a low input impedance (i.e., an inductor). Thus, Harms *et al.* do not disclose every claim limitation of now amended Claim 1 ("at least two channels with high input impedance"). Accordingly, Applicant respectfully submits that Claim 1 should be allowed under 35 U.S.C. § 102(b) under Harms *et al.*

Likewise, neither Pflueg (see Pflueg, Figs. 7A and 7B) nor Flechsig *et al.* (see Flechsig *et al.*, Fig 7) disclose an electronic circuit including “at least two channels with high input impedance . . . coupled to the output of the sensor.” In each of these references, the channels receive the electrical signal at the output of an operational amplifier (Pflueg Fig. 7A, operational amplifiers 78, 80, 86, 88; Flechsig *et al.*, Fig. 7, preamplifier 720) with low output impedance. Accordingly, Applicant respectfully submits that the rejections under 35 U.S.C. § 102(a) and (b) should be withdrawn.

Independent Claims 23, 37, and 38 are being amended to include similar claim limitations as currently amended Claim 1. For at least the same reasons discussed above, these claims should also be allowed under 35 U.S.C. § 102(a) and (b). Further, Applicant respectfully submits that the claims respectively depending from independent Claims 1, 23, and 38 that stand rejected (i.e., Claims 2-11, 20-22, 24-31, 35-48, and 56-57) should also be allowed for at least the same reasons.

Claims 13, 32, and 50 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Harms *et al.*, Pflueg, or Flechsig *et al.* Claims 13, 32, and 50 depend from independent claims that Applicant believes are non-obvious in view of these references, either alone or in combination. For example, the cited references each disclose at least one amplifier with low output impedance between the sensor and the channels, which teaches away from the independent claims as now amended (“at least two channels with high input impedance receiving the electrical signal at . . . the output of the sensor”). In the only embodiment that does not include an amplifier between the sensor and the channels, namely Fig. 1 of Harms *et al.*, direct coupling to the output of the sensor is shown, but low impedance decoupling between the channels is discussed through use of an inductor, which again teaches away from the independent claims as now amended.

Therefore, Applicant respectfully submits that the rejections under 35 U.S.C. § 103(a) is improper and should be withdrawn for at least these reasons for dependent Claims 13, 32, and 50.

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CONCLUSION

In view of the above amendments and remarks, it is believed that all now pending claims (Claims 1-13, 20-32, 35-50, and 56-58) are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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